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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/697,550	10/30/2003	Gregory J. Manlove	DP-308739	7564

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EXAMINER	
SUN, XIUQIN	

ART UNIT	PAPER NUMBER
2863	

DATE MAILED: 11/04/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/697,550	MANLOVE ET AL.	
	Examiner	Art Unit	
	Xiuqin Sun	2863	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 October 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-31* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-31* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *30 October 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Objection

1. Claim 8 is objected to since it improperly depends on itself. Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-3, 10-13, 16, 17, 19, 21, 24-26 and 29 are rejected under 35 U.S.C. 102(b) as being anticipated by Babala et al. (U.S. Pat. No. 6374679).

Babala et al. teach a sensor (see Abstract) comprising: a sensing element for sensing a sensor characteristic (col. 4, lines 9-38); temperature sensing circuitry for sensing a temperature characteristic (col. 3, lines 10-23 and col. 7, lines 51-63); and output circuitry for outputting a pulse width modulated output signal containing an indication of the sensor characteristic, wherein one of the sensor and temperature characteristics is transmitted as a function of pulse width of the pulse width modulated output signal, and the other of the sensor and temperature characteristics is transmitted as a function of frequency of the pulse width modulated output signal (col. 3, lines 10-23 and col. 7, lines 51-63). The teaching of Babala et al. further includes: said one of the

sensor and temperature characteristics is transmitted as a function of duty cycle of the pulse width modulated signal (col. 7, lines 51-63); and said sensing element comprises a pressure sensor (col. 4, lines 9-38).

Babala et al. further teach a sensor comprising: a first sensing element for sensing a first characteristic (col. 4, lines 9-38); a second sensing element for sensing a second characteristic (col. 3, lines 10-23 and col. 7, lines 51-63); and output circuitry for generating a pulse width modulated output signal containing the first and second characteristics, wherein the first characteristic is transmitted as a function of pulse width of the pulse width modulated output signal, and the second characteristic transmitted as a function of frequency of the pulse width modulated output signal (col. 3, lines 10-23 and col. 7, lines 51-63). The teaching of Babala et al. further includes: said first characteristic is provided as a duty cycle of the pulse width modulated output signal (col. 7, lines 51-63); said first sensing element comprises a pressure sensing element for sensing pressure as the first characteristic (col. 4, lines 9-38); and said second sensing element comprises temperature sensing circuitry for sensing temperature as the second characteristic (col. 3, lines 10-23 and col. 7, lines 51-63).

Babala et al. further teach a method of transmitting sensor generated output data in a pulse width modulated output signal (col. 7, lines 51-63), said method comprising the steps of: sensing a sensor characteristic with a sensor (col. 4, lines 9-38); sensing a temperature characteristic with temperature sensing circuitry (col. 3, lines 10-23 and col. 7, lines 51-63); generating a pulse width modulated output signal containing one of the sensor and temperature characteristics as a function of pulse width of the pulse width

modulated output signal, and the other of the sensor and the temperature characteristics as a function of frequency of the pulse width modulated output signal (col. 7, lines 51-63); and transmitting the pulse width modulated output signal via an output (col. 7, lines 51-63). The teaching of Babala et al. further includes: said step of generating a pulse width modulated output signal comprises generating said one of the sensor and temperature characteristics as a function of duty cycle of the pulse width modulated output signal (col. 7, lines 51-63); said step of sensing a first characteristic comprises sensing a pressure with a pressure sensor (col. 4, lines 9-38); and said step of sensing a second characteristic comprises sensing temperature via temperature sensing circuitry (col. 7, lines 51-63).

Babala et al. further teach a method of transmitting sensor generated output data in a pulse width modulated output signal (col. 7, lines 51-63), said method comprising the steps of: sensing a first characteristic with a sensor (col. 4, lines 9-38); sensing a second characteristic (col. 7, lines 51-63); generating a pulse width modulated output signal containing the sensor characteristic as a function of pulse width of the pulse width modulated output signal, and the temperature characteristic as a function of the frequency of the pulse width modulated output signal (col. 7, lines 51-63); and transmitting the pulse width modulated output signal via an output (col. 7, lines 51-63). The teaching of Babala et al. further includes: said step of generating a pulse width modulated output signal comprises generating the output signal to contain the sensor characteristic as a function of duty cycle of the pulse width modulated output signal (col. 7, lines 51-63); said step of sensing a first characteristic comprises sensing pressure

with a pressure sensor (col. 4, lines 9-38); and said step of sensing a second characteristic comprises sensing temperature with temperature sensing circuitry (col. 4, lines 9-38).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 4, 14, 20, 27 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Babala et al. (U.S. Pat. No. 6374679) in view of Cobb et al. (U.S. Pat. No. 6138067).

Babala et al. teach a sensor system and method that includes the subject matter discussed above. Babala et al. do not mention explicitly: said sensor comprises a pressure sensor coupled to a fluid-filled bladder for sensing an occupant in a vehicle.

Cobb et al. teach an adaptive pressure based weight estimation system for a vehicle occupant, comprising a pressure sensor coupled to a fluid-filled bladder for sensing an occupant in a vehicle (col. 2, lines 11-39 and cols. 2-3, lines 61-12).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to include the teaching of Cobb et al. in the invention of Babala et al. in order to apply the Babala sensor system to a pressure-based weight estimation

system for reliably and accurately determining the vacant seat pressure (Cobb et al., col. 1, lines 44-64).

6. Claims 5 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Babala et al. (U.S. Pat. No. 6374679) in view of Vogtmeier et al. (U.S. Pub. No. 20020131626).

Babala et al. teach the sensor system and method that includes the subject matter discussed above. Babala et al. do not mention explicitly: said temperature sensing circuitry comprises a current mirror that generates a current signal as a function of temperature.

Vogtmeier et al. teach a radiation sensor system comprising: a current mirror that generates a current signal as a function of temperature (sections 0014, 0015, 0027 and 0028).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to include the teaching of Vogtmeier et al. in the invention of Babala et al. in order to apply the Babala sensor system to a special temperature sensing circuitry such as a radiation sensor for generating temperature compensated output signals (Vogtmeier et al., sections 0002 and 0003).

7. Claims 6-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Babala et al. (U.S. Pat. No. 6374679) in view of Shi (U.S. Pat. No. 6101106).

Babala et al. teach the sensor system and method that includes the subject matter discussed above. Babala et al. do not mention explicitly: said temperature sensing circuitry comprises first and second current mirrors and a ramp generator for

generating a ramp signal, wherein the pulse width modulated output signal is generated as a function of the ramp signal; a comparator for comparing the ramp signal to an amplitude of the sensor characteristic; said ramp signal varies as a function of temperature.

Shi discloses a pulse width modulated controller operating at high temperatures, including: a temperature sensing circuitry that comprises first and second current mirrors and a ramp generator for generating a ramp signal, wherein the pulse width modulated output signal is generated as a function of the ramp signal (col. 3, lines 8-25; col. 5, lines 28-67 and col. 6, lines 1-29); a comparator for comparing the ramp signal to an amplitude of the sensor characteristic (col. 5, lines 28-67; col. 6, lines 1-29 and col. 9, lines 13-34); said ramp signal varies as a function of temperature (col. 5, lines 28-67; col. 6, lines 1-29 and col. 11, lines 4-8).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to include the teaching of Shi in the invention of Babala et al. in order to apply the Babala sensor system to a special temperature sensing circuitry which operats at hight temperatures for generating temperature compensated output signals (Shi, Abstract).

8. Claims 9, 15, 18 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Babala et al. (U.S. Pat. No. 6374679) in view of Swart et al. (U.S. Pat. No. 6777825).

Babala et al. teach the sensor system and method that includes the subject matter discussed above. Babala et al. do not mention explicitly: said pulse width modulated output signal is transmitted on a current modulated data bus.

Swart et al. disclose a data transmission method and system in a motor vehicle occupant protection system, including a step and means for transmitting sensor signals on a current modulated data bus (col. 5, lines 11-51 and col. 6, lines 31-50).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to include the teaching of Swart et al. in the invention of Babala et al. in order to provide a mechanism in which the master unit has full communications control over the data bus so that data collisions can be avoided (Swart et al., Abstract).

9. Claims 23 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Babala et al. (U.S. Pat. No. 6374679) in view of Balakirshnan et al. (U.S. Pat. No. 6229366).

Babala et al. teach the sensor system and method that includes the subject matter discussed above. Babala et al. do not mention explicitly: applying a signal at startup to generate a constant frequency in the pulse width modulated output signal to communicate data in another mode during startup.

Balakirshnan et al. teach a pulse width modulated controller, comprising the step and means of: applying a signal at startup to generate a constant frequency in the pulse width modulated output signal to communicate data in another mode during startup (col. 3, lines 65-67; col. 4, lines 1-15 and lines 34-40; col. 6, lines 18-29 and 49-67; col. 7, lines 1-8 and col. 10, lines 33-55).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to include the teaching of Balakirshnan et al. in the invention of Babala et al. in order to provide a solution to the problem associated with the startup of the pulse width modulation (Balakirshnan et al. and col. 2, lines 7-25).

Contact Information

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Xiuqin Sun whose telephone number is (571)272-2280. The examiner can normally be reached on 6:30am-4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Barlow can be reached on (571)272-2269. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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October 26, 2004

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